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ABSTRACT

Developed by Japanese corporations to improve productivity and product quality, quality circles (QC's) are small, voluntary groups of workers who share common job responsibilities and who meet regularly to generate solutions to problems. Features of QC's that are applicable to schools are examined in the nine articles summarized in this annotated bibliography. The articles discuss (1) the need to test the readiness of employees and managers for participative management; (2) the relevance of QC's to education, explained by reference to common problems of schools and industries (such as reduced resources and poor morale); (3) the basic concepts and techniques of QC's and the importance of their structure; (4) a step-by-step plan for implementing QC's (such as obtaining top management support and evaluating results); (5) the key factors that might cause a QC program to fail (such as failure to assess management and organizational readiness or inadequate initial planning and implementation); (6) problem areas in schools (such as jurisdictional issues); (7) an existing program in a community college; (8) a high school QC program; and (9) an effective program involving grades 4-6 in Japan. Ordering information is provided. (PB)

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ERIC
Highlights for School Administrators

Quality Circles

MAY/JUNE 1983

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INTRODUCTION

The Quality Circle (QC) is a new idea (some say a fad) here in the United States that is exciting to many educators. The idea was developed originally in the early 1960s by Japanese corporations as a quality/productivity effort that would erase the stigma that "Made in Japan" carried at that time. The result may not be totally attributable to quality circles, but who would deny that today Japanese industry is highly productive and quality conscious?

Seeing this rather spectacular turnaround, many U. S. firms have adopted the QC concept to deal with their own problems of productivity and quality control. It seems to be working. While a QC program requires a substantial dollar investment in employee time, many firms have realized a 2:1 to 6:1 return-on-investment from cost savings and productivity increases.

The model's first name, "quality *control* circles," indicates its technical origin in the improvement of manufacturing processes. But the word "control" has been dropped as the focus has shifted to QC as a participative management and people-building tool.

Japanese corporations traditionally have fostered a "family" environment with strong bonds of employee loyalty, consensus decision making, and real concern for employee development. These features are apparent in the current definition of quality circles and make what, at first glance, seems only a manufacturing technique applicable to service agencies and schools. The intent of quality circles is to build team spirit, to involve workers in the decisions that affect them, and to unleash employee creativity in solving work-related problems. These goals are applicable to any organization.

A quality circle is a small, voluntary group of workers (approximately 7 to 10, although figures vary from 5 to 15) who share a common job or work responsibility. Their immediate supervisor is often the circle leader. After receiving training in group process and problem solving methods (brainstorming, problem analysis, data collection, statistical analysis, and decision making) they meet weekly, usually for one hour, on company time, to define and study work problems and to generate solutions which they present to management for implementation.

A quality circle does not operate in isolation. Management must support the concept and be willing to implement the solutions the circle generates. A steering committee, representing all parts of the organization, plans the implementation of a QC program and lays down guidelines for circle operation. A facilitator provides training, organization, and ongoing communication.

Key features of a QC program:

- A QC is a small group of workers sharing a common job.
- Participation is voluntary.
- All circle members must participate actively in circle work.
- Meetings are held regularly on company time.
- Members are trained in group process and problem solving methods.
- Circle procedures are highly structured and follow a set pattern for problem definition, data collection, and decision analysis.
- Circle members, not management, select the problems the circle works on.
- A steering committee, not management, sets guidelines for circle operation.
- There are some issues (defined in advance) that a circle may *not* work on.
- A facilitator provides training, coordination, and resource support to the circle.
- When a solution has been generated, the circle makes a formal presentation to management.
- Management support is needed to implement circle solutions and to recognize and publicize the efforts of the circle.
- A Quality Circle is not a one-shot task force, but an ongoing part of the management system. The circle stays together and works on problems as long as its members wish to participate.

If you wish to learn more about quality circles in Japanese and American industry, you may want to consult the following ERIC microfiche documents:
Japanese Quality Control Circles. Kazuo Nishiyama, 1981, 18pp. (ED 206 031; 1 microfiche)
Quality Circles: Implications for Training. Carl L. Harshman, ERIC Clearinghouse on Adult, Career and Vocational Education, Columbus, Ohio, 1982, 73pp. (ED 220 725; 1 microfiche)

The following journal articles will provide you with further information on quality circles. Most deal directly with school applications.
Getting Started considers the pros and cons of quality circles in education and present guidelines for implementing a QC program.
Proceed with Caution looks at identified pitfalls and how to avoid them.
It's Working cites functioning quality circle programs in schools and community colleges.
Students, Too focuses on one program that gets young people into quality circles, a topic that is also touched on in the preceding section.

GETTING STARTED

"Test Your Company's Climate before Installing Quality Circles." *Training/HRD,* November 1982, p.13.

Claiming that quality circles need an amenable organizational climate in order to succeed, Richard Thredgold of American Microsystems, Inc., has developed a brief "yes/no" checklist to gauge the readiness of employees and managers for participative management. A score of less than five "yesses" would indicate that quality circles would be difficult to implement.

One of the ten items is "You have an employee suggestion program which is used by at least 50 percent of the employees." While some of these questions obviously do not relate to school organizations (e.g., 50 percent of employees owning company stock), the basic concept outlined by the checklist may be summarized in these points which educators might consider in determining their school's readiness for quality circles:

- A high level of employee participation, affinity and initiative.
- Concern by management about employee's attitudes;
- Mechanisms for recognizing employees;
- Rewards for high performance;
- Low labor turnover rate;
- Highly visible top management personnel;

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• A stated organizational philosophy describing the organization's "culture" and the employee/management relationship.

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"The Quality Circle in Education: Getting Down to the Nitty Gritty." Pat Auckley, *THRUST for Educational Leadership*, November-December 1982, pp.12-14.

Head of the human resources quality circle department at Ampex Corporation, author Auckley provides background on the success of quality circles in Japanese and American industry, emphasizing that QC is more than just a program, it is a process and a philosophy based on the premise that people-building — treating workers as intelligent human beings, tapping their creativity, and giving them a voice in decision making — benefits both the employees and the corporation.

After reviewing the basics of the industrial QC model, Auckley looks at the design's potential in education, noting that the schools have many problems in common with industry: pressure to improve quality with reduced resources, declining productivity, complacency, and poor morale.

Auckley feels that schools are a step ahead in the QC effort for several reasons:

- Well-educated employees;
- A tradition of participative decision making and the use of advisory committees;
- A generally recognized need for improvement; and
- As public agencies, more accessible data for QC problem solving.

But these factors in the school may inhibit Quality Circles:

- Educators are rewarded for independent decision-making;
- Some educators feel that in response to public criticism the schools must appear perfect and that to adopt a self-improvement effort like Quality Circles is to admit imperfection;
- There is an emphasis on role maintenance in the schools, which Quality Circles tend to break down;
- Multiple power sources (boards, parents, unions) have separate expectations, perhaps incompatible with QC solutions;
- Schools have traditionally taken a reactive stance to problems; and
- Many problem areas may be "off-limits" to Quality Circles due to contracts and mandates.

Auckley concludes the article by briefly noting three quality circle programs: one in a Florida district that is working on cost-reduction in district operations; the San Mateo (California) County Office of Education, which is collaborating with the Association of California School Administrators, San Francisco State University, and local districts to develop QCs under a Title IV C grant; and the Santa Clara (California) Unified School District, which is working with a grant from the Bank of America.

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"Quality Circles: Making Schools Productive." James A. Bellanca, *VocEd*, May 1982, pp.31-33. (EJ 261 058)

Bellanca reports that the Northwest Educational Cooperative in Arlington Heights, Illinois, identified quality circles as a practical and cost-effective method to increase school effectiveness and to upgrade productivity and morale. Aided by the Quality Circle Institute in Red Bluff, California, NEC has developed a three-part training program for quality circles in education.

Explaining that "the heavy emphasis on data analysis, married with a structured group dynamic, the formal presentation of results and careful training of each member in the use of circle techniques, differentiates the quality circle from other participatory management approaches," the author goes on to outline the basic concepts and techniques of QCs. He admits that use of the whole formal problem-solving structure (brainstorming, fishbone cause and effect analysis, data collection, Pareto analysis, and management presentation) may seem like overkill on some relatively simple school problems. (The example he used is burnt bakery goods in the Home Ec department. But he asserts that the structured nature of QC processes has several advantages:

- QC members learn a common method and vocabulary which, once mastered, will allow members to tackle far more difficult problems;
- Careful data collection insures that decisions are based on fact, not opinion;
- The process actively involves all circle members and the structure keeps members focused on the task and away from personal conflicts harmful to team spirit.

Bellanca's whole presentation focuses on vocational education and he makes a plea for teaching circle skills to vocational students, since productivity is such a prime concern in industry.

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"Quality Circles in Education." Larry Chase, *Educational Leadership*, February 1983, pp.18-26.

Chase provides a detailed introduction to and rationale for the quality circle process, with several paragraphs of explanation (and some sample forms) for each of the process' eight steps:

- Round robin brainstorming
- Voting to achieve group consensus
- Cause and effect analysis (fishbone technique)
- Data collection
- Decision analysis (Pareto method)
- Solution generation
- Management presentation
- Evaluation

Next he provides lists of sample (or typical) problems that might be tackled by quality circles made up of teachers, school principals, library aides, central office-secretarial staff, custodians, bus drivers, or food service workers.

Asserting that "the politics of quality circles are no different from the politics of any innovation," he provides a step-by-step plan for implementing QCs:

- OBTAIN TOP MANAGEMENT SUPPORT. Chase notes that it will probably take 18 months before the initial financial investment is recovered, so management commitment should be solid. As an example of active management support, he describes how the Illinois State Board of Education, in establishing quality circles among its 900 employees, expressed its commitment to the concept by creating a pilot circle in the Superintendent's cabinet, with the State Superintendent as circle leader.
- ESTABLISH A STEERING COMMITTEE. After outlining the duties of the committee, he suggests that a school QC steering committee should minimally consist of the superintendent (or his/her designee), the business manager, and representatives from the principal's

organization, the teachers' collective bargaining unit, and support staff groups.

- APPOINT THE QUALITY CIRCLE FACILITATOR. Chase cautions that, while a full-time facilitator may not be needed if fewer than six circles are formed, the role should not simply be dumped onto an already-busy administrator.
- EVALUATE THE EFFECTIVENESS OF THE QUALITY CIRCLE PROGRAM. Chase gives the responsibility for setting the evaluation criteria in the pilot phase to the steering committee. He suggests using affective, as well as objective, measures and circulating the results widely throughout the organization.
- QUALITY CIRCLE EXPANSION. He predicts that, in about six months, some circle members will be willing to lead new circles and adds that it is a sign that the program is developing properly if there are always some non-participants trying to get into a circle.

He lists the following as issues circles *don't* deal with:

- Problems relating to the collective bargaining agreement;
- Issues relating to the legitimate prerogatives of management;
- Individual personality problems or the characteristics of particular employees; and
- Any issues defined locally as being too sensitive.

Chase emphasizes that the quality circle must be used as an honest management tool, intended to empower, not manipulate, employees. Throughout his article he reiterates the "ritual" aspects of circle processes and asserts that this is a source of the model's power. He notes for example, that the management presentation serves not only for communication but at as a ritual celebrating and recognizing the circle members' work. The article concludes with an extensive directory of quality circle training resources.

PROCEED WITH CAUTION

5 "Caution: Quality Circles Ahead." Edmund J. Metz, *Training and Development Journal*, August 1981, pp.71-76. (EJ 249 554)

Metz points out that, despite the glowing reports in magazines and trade journals, not all quality circle programs succeed. He quotes Robert E. Cole as estimating that only about one-third of the circles in Japan are doing well and predicts that programs in U. S. firms will have even less success if management is seduced by the "illusory simplicity" of the Quality Circle concept and jumps onto the bandwagon as they did with such fads as MBO and job enrichment.

Metz asserts that, whatever the short-term benefits, the real test of quality circles in a company will be whether or not circles still exist in 2-4 years. He further argues that firms cannot afford to fail in this effort since the resulting impact on personnel could be worse than if the effort were never made.

The following is his list of key factors that could cause a QC program to fail, with a synopsis of some of his explanatory comments and examples:

- NOT ASSESSING MANAGERIAL AND ORGANIZATIONAL READINESS FOR QUALITY CIRCLES. In organizations lacking the "participatory ethic", management has been reported to dictate to circles the problems they are to solve and even to establish specific cost/savings figures they are to meet. Some managers have refused to supply data a circle needs for problem solving, thus displaying a lack of trust in the workers.

Top management may also fail to gain the support of middle managers for the QC program. If the program is supported only by one top manager, it may die if he/she leaves the firm.

Existing organizational reward and communication structures may hinder quality circles. For example, if the reward structure emphasizes short-term gains, the long-term effort involved in quality circle processes may have no chance to develop.

- NOT DOING ADEQUATE START-UP AND IMPLEMENTATION PLANNING. Metz advises that a successful effort must "proceed slowly".

A critical planning lapse would be the failure to form a steering committee and to supply its members with orientation to the quality circle concept. Union leaders, in particular, may be initially distrustful of management's motives for implementing quality circles but, when they are asked to be involved on the steering committee and give a real introduction to the program, union representatives.

Another important part of the implementation phase is organization-wide publicity about the quality circle project. People cannot get involved with or even be willing to cooperate with circles they know nothing about.

- NOT EXERCISING CARE IN SELECTING A FACILITATOR. Metz insists that the facilitator needs adequate time for his/her QC duties, visible support from top management, and good group management skills. He particularly warns facilitators not to let a circle become an elitist group with a "we/they" attitude toward other employees.
- NOT RECOGNIZING THE ORGANIZATIONAL DEVELOPMENT IMPLICATIONS OF QUALITY CIRCLES. Metz defines quality circles as:

> . . . a management philosophy of trust in workers, of allowing workers to become involved more intimately in the work process, of committing dollar resources to the growth and development of the line worker, of building teamwork within natural work units, and of opening communication channels between management and workers.

He cautions that this point must be made clear to key decision makers when the QC concept is first introduced.

6 "Filling the Holes in the Quality Circle Approach." Don L. Barbee, *THRUST for Educational Leadership*, November-December 1982, pp.17-18.

Based on the experience of the San Mateo (California) County Schools Quality Circle Consortium and on reports from the private sector, Barbee identifies several potential problem areas to address when planning quality circles in schools:

- PAYOFF. Participants must be convinced that QCs will work and that they will lead to improvements. Members must be ready to make a personal commitment to the process.
- TERRITORIAL IMPERATIVES. Jurisdictional issues, especially in relation to legal responsibilities, unions, and "negotiable" versus "non-negotiable" topics must be clear from the beginning and re-clarified as needed.
- VOLUNTARY VOLUNTEERS. The voluntary nature of participation is crucial to the quality circle concept. Barbee warns that "volunteered volunteers — via administrative mandate or subtle coercion — can jeopardize a QC's survival." Also, the rights and interests of those who

choose not to participate must be respected.

- SUPPORT AND RECOGNITION. The backing of the principal, superintendent and board is critical. Management must supply training, formal acknowledgement, and publicity of the QC effort. Management must be willing to hear and implement QC recommendations.
- QC LEADERSHIP. Barbee advocates training for QC leaders and members but suggests that, since most educators already have a background in human relations, highly trained "facilitators" are not so necessary to school circles as they are to those in industry.
- TIME. Barbee suggests that it requires 3-6 months to introduce the idea of Quality Circles and to generate readiness, and he feels that a year or more may be necessary to make the interpersonal adjustments necessary to a well-functioning circle. He sees willingness to adjust school schedules for regular QC meetings as a test of the school's commitment to quality circles.

IT'S WORKING

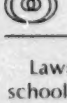
"Quality Circles That Enhance Productivity." Larry Romine, *Community and Junior College Journal*, November 1981, pp.30-31. (EJ 258 291)

Lane Community College in Eugene, Oregon, is developing Quality Circles under the aegis of a productivity center, with the goal of raising quality while holding down costs. Romine notes that Lane has a long history of staff initiative and participation in cost-cutting efforts. The productivity center was implemented to coordinate and recognize these efforts.

Six circles have been established, with staff trained as facilitators. The steering committee consists of faculty, support staff, managers, and a student.

Romine reports that there was some initial staff resentment of the productivity center, because its budget was taken from departmental funds and because some staff felt that they had managed, and were managing, to be productive and cost-conscious without it. The center, therefore, is making a special effort to emphasize its "helping" role to the departments and to publicize past productivity success stories.

Romine concludes that, although measurable results are not expected for a few years, the college president is highly optimistic.



"The Japanese Model of Management: Will It Work for High Schools?" Gary Phillips and Bill McColly, *NASSP Bulletin*, November 1982, pp.82-86.

Lawrence North High School in Indianapolis, Indiana, has begun a school improvement program cosponsored by Charles F. Kettering, I/D/E/A, and the Lilly Endowment. Its goal is to replace conflict and alienation with cooperation and affiliation through shared decision-making and "synergistic management" that focuses on "win/win" solutions.

Phillips and McColly do not use the term "quality circles" in their article, but several facets of that concept are echoed in the program they describe. Parent and community, as well as student and teacher, talent is mobilized in meetings that design school improvement projects. Volunteer groups of teachers meet weekly in "clusters" to find ways to improve their efficiency and the quality of their worklives. (One result has been a series of teacher-developed inservice sessions.) Students are involved through homeroom, where they receive leadership training and regularly take extended class time to pursue school improvement efforts.

The authors report that the number of volunteer teacher participants has doubled since the inception of synergistic management and that morale, attendance, and achievement are up, while vandalism is down. Further expansion of the program is anticipated.

"Education for 'Quality Circles' in Japanese Schools." E. Paul Torrance, *Journal of Research and Development in Education*, Winter 1982, pp.11-15. (EJ 258 794)

Torrance, noted in the field of gifted and creativity education, reports on a very early application of quality circles which he observed at the Nara Women's National University demonstration school in Japan. There, the quality circles are made up of pupils, grades 4-6. Learning and using the problem solving, data collection, and statistical analysis methods they will later apply as adults in corporate quality circles, these children tackle such problems as improving playground equipment and providing better care for classroom animals.

Noting similarities to the Future Problem Solving program for gifted students in this country, he points to the success of such programs in fostering creative problem solving and a future orientation in the children and in promoting individual respect, group pride, and feelings of identity with the school.

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